

REMARKS:

Claims 1-21 have been rejected under 35 USC 103(a) as being unpatentable over Hirano (JP 61-145720 A, hereinafter "Hirano") in view of Hines et al. (WO 01/41214, hereinafter "Hines").

Applicants first note that the core (11) of Hirano is described as a single contiguous structure. First, Hirano refers to the core in the singular sense throughout the reference. Second, reference is made to Hirano's FIG. 2, which shows the core (22) as being a single contiguous layer positioned below the element (23). Thus, the core appears to be a single unified layer, i.e., without a physical separation sandwiching the element. Third, Hirano defines the core as a magnetic thin film (singular). See Hirano p. 4, lines 15-17. Therefore, Hirano appears to fail to disclose a structure having two non-connected shields.

Claim 1 has also been amended to include the limitation that the thicknesses of a majority of the shields be less than one half the widths of the shields. Support for this amendment is found in FIGS. 4 and 5 of the present application. FIG. 4 shows the width of one of the shields (along the plane of the page and parallel to the disk media (404)), while FIG. 5 shows the thicknesses of the shields (along the plane of the page and parallel to the disk media (404)). As shown, the smallest width of the shield, the track width (TW) is greater than one half the thickness. This configuration provides a dual shield structure with a low profile (as shown in FIG. 5) yet with a greater mass to carry more flux to the EMR sensor 406, thus minimizing size while greatly improving the MR signal.

In contrast, referring to FIG. 6 of Hirano, the thickness of the core (51) is about the same as the width of the core, the core being shown to have a substantially square cross section. This configuration requires much more real estate in the head, and may be unacceptable for current high track density disk drives.

Applicants respectfully request that the Examiner allow claim 1, particularly as amended.

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Claims 2-15 incorporate the limitations of claim 1, particularly as amended, and therefore are also believed to be allowable over the art of record.

Claim 16 has been amended to require that a centerline of one of the shields, at least about 75% of which resides along intersecting planes, one plane being parallel to a flow of flux through the shields, the other plane being perpendicular thereto. Support for this amendment is found in FIGS. 4 and 5. The plane parallel to the flow of flux is parallel to the page with respect to FIG. 5. In contrast, Hirano's core has various bends, such that the centerline thereof forms a C shape. Thus, claim 16 is believed to be allowable over the art of record. Applicants respectfully request that the Examiner allow claim 16, particularly as amended.

Claims 17-21 have been amended in a manner similar to claim 1, and therefore is believed to be allowable for the same reasons as claim 1.

New claims 22-24 have been added to further define the scope of the present invention. Allowance of claims 22-24 is respectfully requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 971-2573. For payment of any additional fees due in connection with the filing of this paper, the Commissioner is authorized to charge such fees to Deposit Account No. 50-2587 (Order No. HSI920010087US1).

Respectfully submitted,

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